

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing Of Claims:

1-13. (Canceled)

14. (New) A method for correcting a position of angle marks of an incremental gear of at least one of a rotary speed sensor and a rotary angle sensor of an internal combustion engine, comprising:

recording positions of the angle marks using the at least one of the rotary speed sensor and the rotational angle sensor;

measuring combustion chamber pressure values in respective cylinders of the internal combustion engine to produce measured cylinder pressure values;

assigning the measured cylinder pressure values to the recorded angle mark positions;

selectively correcting the measured cylinder pressure values in a signal-conditioning device;

storing the recorded angle mark positions with the appertaining, measured cylinder pressure values in a measured value table;

storing ideal pressure values that are derived at ideal angle mark positions in a reference table;

comparing the measured cylinder pressure values to the ideal pressure values;

determining deviations of the measured angle mark positions from the ideal angle mark positions at the corresponding measured cylinder pressure values in an evaluation unit; and

correcting the measured angle mark positions by the determined deviations .

15. (New) The method as recited in Claim 14, wherein the method is carried out in predefined operating states of the internal combustion engine.

16. (New) The method as recited in Claim 15, wherein the predefined operating states include a combustion-free overrun condition.

17. (New) The method as recited in Claim 14, wherein the determining of the deviations takes place in a range of clearly defined cylinder pressure values.

18. (New) The method as recited in Claim 17, wherein the clearly defined cylinder pressure values are maximum values in at least one of a compression phase and an expansion phase of the respective cylinder.

19. (New) The method as recited in Claim 18, further comprising:
determining the maximum values via derivatives of combustion chamber pressure signals with respect to a shaft angle.

20. (New) The method as recited in Claim 18, wherein the selective correcting of the measured pressure values is performed by the least squares estimating method.

21. (New) The method as recited in Claim 20,
wherein, in the least squares estimating method, an amplification factor a and an offset factor b are estimated, the following sum

$$\sum_{i=1}^{2M/Z} [p_{\text{cyl,table}}(i) - (a \cdot p_{\text{cyl,measurement}}(i) + b)]^2 \rightarrow \text{Min}$$

tending to a minimum.

22. (New) The method as recited in Claim 14, wherein the measured cylinder pressure values are first measured and stored over several working cycles, and the measured cylinder pressure values are averaged for the individual angle mark positions.

23. (New) The method as recited in Claim 14, further comprising:
monitoring an operating state of the internal combustion engine using an operating point detector.

24. (New) The method as recited in Claim 14, wherein:
the incremental gear includes a plurality of segments respectively assigned to one cylinder,
a signal evaluation unit assigns individual cylinders to the segments from the measured mark positions, and

the measured cylinder pressure values of the respective cylinders are assignable to the respective segments.

25. (New) The method as recited in Claim 14, further comprising:
compensating for a rotary speed function of the recording of the angle mark positions.
26. (New) The method as recited in Claim 25, further comprising:
performing a calibration of angle mark separation distances from a cylinder pressure signal at different rotary speeds; and
storing the calibration in an angle correction table as a function of rotary speed.
27. (New) A system for correcting a position of angle marks of an incremental gear of at least one of a rotary speed sensor and a rotary angle sensor of an internal combustion engine, comprising:
at least one of rotary speed sensors and rotary angle sensors;
an incremental gear containing angle marks, the incremental gear following a rotational movement of a shaft;
at least one sensor element;
a plurality of measuring sensors for measuring pressure values of a combustion chamber pressures in individual cylinders of the internal combustion engine; and
a control unit including:
a first signal evaluation unit,
a measured value table,
a reference table,
a signal-conditioning device,
a second evaluation unit, and
an angular correction table.